

1. A method of treating an autoimmune disease in a subject, the method comprising administering to the subject an effective amount of a pharmaceutical composition comprising (i) a pharmaceutically acceptable carrier and  
5 (ii) an antibody that binds to a polypeptide consisting of SEQ ID NO:2.

2. The method of claim 1, wherein the antibody is monoclonal.

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3. The method of claim 1, wherein the antibody is polyclonal.

4. The method of claim 1, wherein the antibody binds  
15 to the extracellular region of the polypeptide.

5. The method of claim 1, wherein the antibody is a human, mouse, rat, guinea pig, rabbit, dog, cat, pig, goat, horse, or cow antibody.

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6. The method of claim 5, wherein the antibody is a human, mouse, or rat antibody.

7. The method of claim 1, wherein the antibody is  
25 chimeric.

8. The method of claim 1, wherein the antibody is humanized.

9. The method of claim 1, wherein the antibody is a  
30 human antibody.

10. The method of claim 2, wherein the antibody binds to the extracellular region of polypeptide.

11. The method of claim 2, wherein the antibody is a  
5 human, mouse, rat, guinea pig, rabbit, dog, cat, pig, goat, horse, or cow antibody.

12. The method of claim 2, wherein the antibody is chimeric.

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13. The method of claim 2, wherein the antibody is humanized.

14. The method of claim 2, wherein the antibody is a  
15 human antibody.

15. A method of treating an autoimmune disease in a subject, the method comprising administering to the subject an effective amount of a pharmaceutical composition  
20 comprising (i) a pharmaceutically acceptable carrier and (ii) an antibody fragment that binds to a polypeptide consisting of SEQ ID NO:2, wherein the antibody fragment is selected from the group consisting of an  $F(ab')_2$ , an  $Fab'$ , an  $Fab$ , an  $Fv$ , an  $sFv$ , and a  $dsFv$  antibody fragment.

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16. The method of claim 15, wherein the antibody fragment is a fragment of a monoclonal antibody.

17. The method of claim 15, wherein the antibody  
30 fragment is a fragment of a polyclonal antibody.

18. The method of claim 15, wherein the antibody fragment binds to the extracellular region of the polypeptide.

5        19. The method of claim 15, wherein the antibody fragment is a fragment of a human, mouse, rat, guinea pig, rabbit, dog, cat, pig, goat, horse, or cow antibody.

20. The method of claim 19, wherein the antibody  
10 fragment is a fragment of a human, mouse or rat antibody.

21. The method of claim 15, wherein the antibody fragment is chimeric.

15        22. The method of claim 15, wherein the antibody fragment is humanized.

23. The method of claim 15, wherein the antibody fragment is a fragment of a human antibody.  
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24. The method of claim 16, wherein the antibody fragment binds to the extracellular region of the polypeptide.

25        25. The method of claim 16, wherein the antibody fragment is a fragment of a human, mouse, rat, guinea pig, rabbit, dog, cat, pig, goat, horse, or cow antibody.

26. The method of claim 25, wherein the antibody  
30 fragment is a fragment of a human, mouse or rat antibody.

27. The method of claim 16, wherein the antibody fragment is chimeric.

28. The method of claim 16, wherein the antibody  
5 fragment is humanized.

29. The method of claim 16, wherein the antibody fragment is a fragment of a human antibody.

10 30. A method of treating an autoimmune disease in a subject, the method comprising administering to the subject an effective amount of a pharmaceutical composition comprising (i) a pharmaceutically acceptable carrier and (ii) a polypeptide comprising

15 (a) an extracellular region of the protein set forth in SEQ ID NO:2, or

(b) an extracellular region of a protein that consists of the amino acid sequence of SEQ ID NO:2 in which one to ten amino acid residues are substituted, deleted or added;

20 wherein said polypeptide comprises the amino acid sequence Phe-Asp-Pro-Pro-Pro-Phe (SEQ ID NO:21) and inhibits the activation of lymphocytes.

31. The method of claim 30, wherein the polypeptide  
25 consists of

(a) an extracellular region of the protein set forth in SEQ ID NO:2, or

(b) an extracellular region of a protein that consists of the amino acid sequence of SEQ ID NO:2 in which one to  
30 ten amino acid residues are substituted, deleted or added.

32. A method of treating an autoimmune disease in a subject, the method comprising administering to the subject an effective amount of a pharmaceutical composition comprising (i) a pharmaceutically acceptable carrier and  
5 (ii) a polypeptide fragment comprising amino acid residues 1-140 of SEQ ID NO:2.

33. A method of treating an autoimmune disease in a subject, the method comprising administering to the subject  
10 an effective amount of a pharmaceutical composition comprising (i) a pharmaceutically acceptable carrier and (ii) a polypeptide fragment consisting of amino acid residues 1-140 of SEQ ID NO:2.

15 34. A method of treating an autoimmune disease in a subject, the method comprising administering to the subject an effective amount of a pharmaceutical composition comprising (i) a pharmaceutically acceptable carrier and (ii) a homodimer molecule consisting of two polypeptide  
20 fragments bridged through disulfide bonds to each other, wherein each polypeptide fragment comprises the amino acid sequence Phe-Asp-Pro-Pro-Pro-Phe (SEQ ID NO:21) and comprises

(a) an extracellular region of the protein set forth  
25 in SEQ ID NO:2, or

(b) an extracellular region of a protein that consists of the amino acid sequence of SEQ ID NO:2 in which one to ten amino acid residues are substituted, deleted or added;  
wherein an antibody reactive with the homodimer  
30 molecule induces proliferation of peripheral blood lymphocytes in the presence of an antibody reactive with CD3.

35. The method of claim 34, wherein each polypeptide fragment comprises an extracellular region of the protein set forth in SEQ ID NO:2.

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36. The method of claim 35, wherein each polypeptide fragment consists of an extracellular region of the protein set forth in SEQ ID NO:2.

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37. The method of claim 34, wherein each polypeptide fragment consists of an extracellular region of a protein that consists of the amino acid sequence of SEQ ID NO:2 in which one to ten amino acid residues are substituted, deleted or added.

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38. A method of treating an autoimmune disease in a subject, the method comprising administering to the subject an effective amount of a pharmaceutical composition comprising (i) a pharmaceutically acceptable carrier and  
20 (ii) a fusion polypeptide comprising

(a) a polypeptide consisting of an extracellular region of

(I) the protein set forth in SEQ ID NO:2, or

25

(II) a protein that consists of the amino acid sequence of SEQ ID NO:2 in which one to ten amino acid residues are substituted, deleted or added; and

(b) a portion of a constant region of a human immunoglobulin heavy chain;

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wherein said fusion polypeptide comprises the amino acid sequence Phe-Asp-Pro-Pro-Pro-Phe (SEQ ID NO:21) and inhibits the activation of lymphocytes.

39. The method of claim 38, wherein the extracellular region of the polypeptide is amino acid residues 1-140 of SEQ ID NO:2.

5        40. The method of claim 38, wherein the portion of the constant region of a human immunoglobulin heavy chain consists of the hinge region, CH2 domain, and CH3 domain of human IgG heavy chain.

10       41. The method of claim 39, wherein the portion of the constant region of a human immunoglobulin heavy chain consists of the hinge region, CH2 domain, and CH3 domain of human IgG heavy chain.

15       42. The method of claim 38, wherein the fusion polypeptide consists of

         (a) a polypeptide consisting of an extracellular region of

         (I) the protein set forth in SEQ ID NO:2, or

20       (II) a protein that consists of the amino acid sequence of SEQ ID NO:2 in which one to ten amino acid residues are substituted, deleted or added; and

         (b) a portion of a constant region of a human immunoglobulin heavy chain.

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         43. The method of claim 42, wherein the extracellular region of the polypeptide is amino acid residues 1-140 of SEQ ID NO:2.

30       44. The method of claim 42, wherein the portion of the constant region of a human immunoglobulin heavy chain

consists of the hinge region, CH2 domain, and CH3 domain of human IgG heavy chain.

45. The method of claim 43, wherein the portion of  
5 the constant region of a human immunoglobulin heavy chain consists of the hinge region, CH2 domain, and CH3 domain of human IgG heavy chain.

46. A method of treating an autoimmune disease in a  
10 subject, the method comprising administering to the subject an effective amount of a pharmaceutical composition comprising (i) a pharmaceutically acceptable carrier and (ii) a homodimer molecule consisting of two fusion polypeptides bridged through disulfide bonds to each other,  
15 wherein each fusion polypeptide comprises

(a) a polypeptide consisting of an extracellular region of

(I) the protein set forth in SEQ ID NO:2, or

(II) a protein that consists of the amino acid  
20 sequence of SEQ ID NO:2 in which one to ten amino acid residues are substituted, deleted or added; and

(b) a portion of a constant region of a human immunoglobulin heavy chain;

wherein each fusion polypeptide comprises the amino  
25 acid sequence Phe-Asp-Pro-Pro-Pro-Phe (SEQ ID NO:21) and inhibits the activation of lymphocytes.

47. The method of claim 46, wherein each fusion polypeptide consists of

30 (a) a polypeptide consisting of an extracellular region of

(I) the protein set forth in SEQ ID NO:2, or



(II) a protein that consists of the amino acid sequence of SEQ ID NO:2 in which one to ten amino acid residues are substituted, deleted or added; and

5 (b) a portion of a constant region of a human immunoglobulin heavy chain.

48. The method of claim 46, wherein the extracellular region of the polypeptide is amino acid residues 1-140 of  
10 SEQ ID NO:2.

49. The method of claim 46, wherein the portion of the constant region of a human immunoglobulin heavy chain consists of the hinge region, CH2 domain, and CH3 domain of  
15 human IgG heavy chain.

50. The method of claim 48, wherein the portion of the constant region of a human immunoglobulin heavy chain consists of the hinge region, CH2 domain, and CH3 domain of  
20 human IgG heavy chain.

51. The method of claim 47, wherein the extracellular region of the polypeptide is amino acid residues 1-140 of  
25 SEQ ID NO:2.

52. The method of claim 47, wherein the portion of the constant region of a human immunoglobulin heavy chain consists of the hinge region, CH2 domain, and CH3 domain of  
human IgG heavy chain.

30 53. The method of claim 51, wherein the portion of the constant region of a human immunoglobulin heavy chain

consists of the hinge region, CH2 domain, and CH3 domain of human IgG heavy chain.

54. A method of treating an autoimmune disease in a subject, the method comprising administering to the subject an effective amount of a pharmaceutical composition comprising (i) a pharmaceutically acceptable carrier and (ii) a polypeptide consisting of the amino acid sequence of SEQ ID NO:2 in which one to ten amino acids are substituted, deleted or added; wherein,

(a) the polypeptide comprises the amino acid sequence Phe-Asp-Pro-Pro-Pro-Phe (SEQ ID NO:21) in its extracellular region,

(b) the polypeptide comprises the amino acid sequence Tyr-Met-Phe-Met (SEQ ID NO:22) in its cytoplasmic region, and

(c) an antibody reactive with the polypeptide induces proliferation of peripheral blood lymphocytes in the presence of an antibody reactive with CD3.

55. A method of treating an allergic disease in a subject, the method comprising administering to the subject an effective amount of a pharmaceutical composition comprising (i) a pharmaceutically acceptable carrier and (ii) an antibody that binds to a polypeptide consisting of SEQ ID NO:2.

56. The method of claim 55, wherein the antibody is monoclonal.

57. The method of claim 55, wherein the antibody is polyclonal.

58. The method of claim 55, wherein the antibody binds to the extracellular region of the polypeptide.

5 59. The method of claim 55, wherein the antibody is a human, mouse, rat, guinea pig, rabbit, dog, cat, pig, goat, horse, or cow antibody.

60. The method of claim 59, wherein the antibody is a  
10 human, mouse, or rat antibody.

61. The method of claim 55, wherein the antibody is chimeric.

15 62. The method of claim 55, wherein the antibody is humanized.

63. The method of claim 55, wherein the antibody is a  
human antibody.  
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64. The method of claim 56, wherein the antibody binds to the extracellular region of polypeptide.

65. The method of claim 56, wherein the antibody is a  
25 human, mouse, rat, guinea pig, rabbit, dog, cat, pig, goat, horse, or cow antibody.

66. The method of claim 56, wherein the antibody is chimeric.  
30

67. The method of claim 56, wherein the antibody is humanized.

68. The method of claim 56, wherein the antibody is a human antibody.

5        69. A method of treating an allergic disease in a subject, the method comprising administering to the subject an effective amount of a pharmaceutical composition comprising (i) a pharmaceutically acceptable carrier and (ii) an antibody fragment that binds to a polypeptide  
10 consisting of SEQ ID NO:2, wherein the antibody fragment is selected from the group consisting of an F(ab')<sub>2</sub>, an Fab', an Fab, an Fv, an sFv, and a dsFv antibody fragment.

70. The method of claim 69, wherein the antibody  
15 fragment is a fragment of a monoclonal antibody.

71. The method of claim 69, wherein the antibody fragment is a fragment of a polyclonal antibody.

20        72. The method of claim 69, wherein the antibody fragment binds to the extracellular region of the polypeptide.

73. The method of claim 69, wherein the antibody  
25 fragment is a fragment of a human, mouse, rat, guinea pig, rabbit, dog, cat, pig, goat, horse, or cow antibody.

74. The method of claim 73, wherein the antibody fragment is a fragment of a human, mouse or rat antibody.  
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75. The method of claim 69, wherein the antibody fragment is chimeric.

76. The method of claim 69, wherein the antibody fragment is humanized.

5        77. The method of claim 69, wherein the antibody fragment is a fragment of a human antibody.

78. The method of claim 70, wherein the antibody fragment binds to the extracellular region of the  
10 polypeptide.

79. The method of claim 70, wherein the antibody fragment is a fragment of a human, mouse, rat, guinea pig, rabbit, dog, cat, pig, goat, horse, or cow antibody.  
15

80. The method of claim 79, wherein the antibody fragment is a fragment of a human, mouse or rat antibody.

81. The method of claim 70, wherein the antibody  
20 fragment is chimeric.

82. The method of claim 70, wherein the antibody fragment is humanized.

25        83. The method of claim 70, wherein the antibody fragment is a fragment of a human antibody.

84. A method of treating an allergic disease in a subject, the method comprising administering to the subject  
30 an effective amount of a pharmaceutical composition comprising (i) a pharmaceutically acceptable carrier and (ii) a polypeptide comprising

(a) an extracellular region of the protein set forth in SEQ ID NO:2, or

(b) an extracellular region of a protein that consists of the amino acid sequence of SEQ ID NO:2 in which one to  
5 ten amino acid residues are substituted, deleted or added;  
wherein said polypeptide comprises the amino acid sequence Phe-Asp-Pro-Pro-Pro-Phe (SEQ ID NO:21) and inhibits the activation of lymphocytes.

10 85. The method of claim 84, wherein the polypeptide consists of

(a) an extracellular region of the protein set forth in SEQ ID NO:2, or

(b) an extracellular region of a protein that consists  
15 of the amino acid sequence of SEQ ID NO:2 in which one to ten amino acid residues are substituted, deleted or added.

86. A method of treating an allergic disease in a subject, the method comprising administering to the subject  
20 an effective amount of a pharmaceutical composition comprising (i) a pharmaceutically acceptable carrier and (ii) a polypeptide fragment comprising amino acid residues 1-140 of SEQ ID NO:2.

25 87. A method of treating an allergic disease in a subject, the method comprising administering to the subject an effective amount of a pharmaceutical composition comprising (i) a pharmaceutically acceptable carrier and (ii) a polypeptide fragment consisting of amino acid  
30 residues 1-140 of SEQ ID NO:2.

88. A method of treating an allergic disease in a subject, the method comprising administering to the subject an effective amount of a pharmaceutical composition comprising (i) a pharmaceutically acceptable carrier and  
5 (ii) a homodimer molecule consisting of two polypeptide fragments bridged through disulfide bonds to each other, wherein each polypeptide fragment comprises the amino acid sequence Phe-Asp-Pro-Pro-Pro-Phe (SEQ ID NO:21) and comprises

10 (a) an extracellular region of the protein set forth in SEQ ID NO:2, or

(b) an extracellular region of a protein that consists of the amino acid sequence of SEQ ID NO:2 in which one to ten amino acid residues are substituted, deleted or added;

15 wherein an antibody reactive with the homodimer molecule induces proliferation of peripheral blood lymphocytes in the presence of an antibody reactive with CD3.

20 89. The method of claim 88, wherein each polypeptide fragment comprises an extracellular region of the protein set forth in SEQ ID NO:2.

25 90. The method of claim 89, wherein each polypeptide fragment consists of an extracellular region of the protein set forth in SEQ ID NO:2.

30 91. The method of claim 88, wherein each polypeptide fragment consists of an extracellular region of a protein that consists of the amino acid sequence of SEQ ID NO:2 in which one to ten amino acid residues are substituted, deleted or added.

92. A method of treating an allergic disease in a subject, the method comprising administering to the subject an effective amount of a pharmaceutical composition

5 comprising (i) a pharmaceutically acceptable carrier and (ii) a fusion polypeptide comprising

(a) a polypeptide consisting of an extracellular region of

(I) the protein set forth in SEQ ID NO:2, or

10 (II) a protein that consists of the amino acid sequence of SEQ ID NO:2 in which one to ten amino acid residues are substituted, deleted or added; and

(b) a portion of a constant region of a human immunoglobulin heavy chain;

15 wherein said fusion polypeptide comprises the amino acid sequence Phe-Asp-Pro-Pro-Pro-Phe (SEQ ID NO:21) and . inhibits the activation of lymphocytes.

93. The method of claim 92, wherein the extracellular  
20 region of the polypeptide is amino acid residues 1-140 of SEQ ID NO:2.

94. The method of claim 92, wherein the portion of the constant region of a human immunoglobulin heavy chain  
25 consists of the hinge region, CH2 domain, and CH3 domain of human IgG heavy chain.

95. The method of claim 93, wherein the portion of the constant region of a human immunoglobulin heavy chain  
30 consists of the hinge region, CH2 domain, and CH3 domain of human IgG heavy chain.



96. The method of claim 92, wherein the fusion polypeptide consists of

(a) a polypeptide consisting of an extracellular region of

5 (I) the protein set forth in SEQ ID NO:2, or

(II) a protein that consists of the amino acid sequence of SEQ ID NO:2 in which one to ten amino acid residues are substituted, deleted or added; and

(b) a portion of a constant region of a human  
10 immunoglobulin heavy chain.

97. The method of claim 96, wherein the extracellular region the polypeptide is amino acid residues 1-140 of SEQ ID NO:2.

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98. The method of claim 96, wherein the portion of the constant region of a human immunoglobulin heavy chain consists of the hinge region, CH2 domain, and CH3 domain of human IgG heavy chain.

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99. The method of claim 97, wherein the portion of the constant region of a human immunoglobulin heavy chain consists of the hinge region, CH2 domain, and CH3 domain of human IgG heavy chain.

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100. A method of treating an allergic disease in a subject, the method comprising administering to the subject an effective amount of a pharmaceutical composition comprising (i) a pharmaceutically acceptable carrier and  
30 (ii) a homodimer molecule consisting of two fusion polypeptides bridged through disulfide bonds to each other, wherein each fusion polypeptide comprises

(a) a polypeptide consisting of an extracellular region of

(I) the protein set forth in SEQ ID NO:2, or

(II) a protein that consists of the amino acid  
5 sequence of SEQ ID NO:2 in which one to ten amino acid  
residues are substituted, deleted or added; and

(b) a portion of a constant region of a human immunoglobulin heavy chain;

wherein each fusion polypeptide comprises the amino  
10 acid sequence Phe-Asp-Pro-Pro-Pro-Phe (SEQ ID NO:21) and  
inhibits the activation of lymphocytes.

101. The method of claim 100, wherein each fusion polypeptide consists of

15 (a) a polypeptide consisting of an extracellular region of

(I) the protein set forth in SEQ ID NO:2, or

(II) a protein that consists of the amino acid  
sequence of SEQ ID NO:2 in which one to ten amino  
20 acid residues are substituted, deleted or added;  
and

(b) a portion of a constant region of a human immunoglobulin heavy chain.

25 102. The method of claim 100, wherein the extracellular region of the polypeptide is amino acid residues 1-140 of SEQ ID NO:2.

103. The method of claim 100, wherein the portion of  
30 the constant region of a human immunoglobulin heavy chain consists of the hinge region, CH2 domain, and CH3 domain of human IgG heavy chain.

104. The method of claim 102, wherein the portion of the constant region of a human immunoglobulin heavy chain consists of the hinge region, CH2 domain, and CH3 domain of human IgG heavy chain.

105. The method of claim 101, wherein the extracellular region of the polypeptide is amino acid residues 1-140 of SEQ ID NO:2.

106. The method of claim 101, wherein the portion of the constant region of a human immunoglobulin heavy chain consists of the hinge region, CH2 domain, and CH3 domain of human IgG heavy chain.

107. The method of claim 105, wherein the portion of the constant region of a human immunoglobulin heavy chain consists of the hinge region, CH2 domain, and CH3 domain of human IgG heavy chain.

108. A method of treating an allergic disease in a subject, the method comprising administering to the subject an effective amount of a pharmaceutical composition comprising (i) a pharmaceutically acceptable carrier and (ii) a polypeptide consisting of the amino acid sequence of SEQ ID NO:2 in which one to ten amino acids are substituted, deleted or added; wherein,

(a) the polypeptide comprises the amino acid sequence Phe-Asp-Pro-Pro-Pro-Phe (SEQ ID NO:21) in its extracellular region,

(b) the polypeptide comprises the amino acid sequence Tyr-Met-Phe-Met (SEQ ID NO:22) in its cytoplasmic region, and

5 (c) an antibody reactive with the polypeptide induces proliferation of peripheral blood lymphocytes in the presence of an antibody reactive with CD3.

10 109. A method of treating an inflammatory disease in a subject, the method comprising administering to the subject an effective amount of a pharmaceutical composition comprising (i) a pharmaceutically acceptable carrier and (ii) an antibody that binds to a polypeptide consisting of SEQ ID NO:2.

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110. The method of claim 109, wherein the antibody is monoclonal.

20 111. The method of claim 109, wherein the antibody is polyclonal.

112. The method of claim 109, wherein the antibody binds to the extracellular region of the polypeptide.

25 113. The method of claim 109, wherein the antibody is a human, mouse, rat, guinea pig, rabbit, dog, cat, pig, goat, horse, or cow antibody.

30 114. The method of claim 113, wherein the antibody is a human, mouse, or rat antibody.

115. The method of claim 109, wherein the antibody is chimeric.

116. The method of claim 109, wherein the antibody is  
5 humanized.

117. The method of claim 109, wherein the antibody is a human antibody.

10 118. The method of claim 110, wherein the antibody binds to the extracellular region of polypeptide.

119. The method of claim 110, wherein the antibody is a human, mouse, rat, guinea pig, rabbit, dog, cat, pig,  
15 goat, horse, or cow antibody.

120. The method of claim 110, wherein the antibody is chimeric.

20 121. The method of claim 110, wherein the antibody is humanized.

122. The method of claim 110, wherein the antibody is a human antibody.

25

123. A method of treating an inflammatory disease in a subject, the method comprising administering to the subject an effective amount of a pharmaceutical composition comprising (i) a pharmaceutically acceptable carrier and  
30 (ii) an antibody fragment that binds to a polypeptide consisting of SEQ ID NO:2, wherein the antibody fragment is

selected from the group consisting of an  $F(ab')_2$ , an  $Fab'$ , an  $Fab$ , an  $Fv$ , an  $sFv$ , and a  $dsFv$  antibody fragment.

124. The method of claim 123, wherein the antibody  
5 fragment is a fragment of a monoclonal antibody.

125. The method of claim 123, wherein the antibody fragment is a fragment of a polyclonal antibody.

10 126. The method of claim 123, wherein the antibody fragment binds to the extracellular region of the polypeptide.

127. The method of claim 123, wherein the antibody  
15 fragment is a fragment of a human, mouse, rat, guinea pig, rabbit, dog, cat, pig, goat, horse, or cow antibody.

128. The method of claim 127, wherein the antibody fragment is a fragment of a human, mouse or rat antibody.

20

129. The method of claim 123, wherein the antibody fragment is chimeric.

130. The method of claim 123, wherein the antibody  
25 fragment is humanized.

131. The method of claim 123, wherein the antibody fragment is a fragment of a human antibody.

30 132. The method of claim 124, wherein the antibody fragment binds to the extracellular region of the polypeptide.

133. The method of claim 124, wherein the antibody fragment is a fragment of a human, mouse, rat, guinea pig, rabbit, dog, cat, pig, goat, horse, or cow antibody.

5

134. The method of claim 133, wherein the antibody fragment is a fragment of a human, mouse or rat antibody.

135. The method of claim 124, wherein the antibody  
10 fragment is chimeric.

136. The method of claim 124, wherein the antibody fragment is humanized.

15 137. The method of claim 124, wherein the antibody fragment is a fragment of a human antibody.

138. A method of treating an inflammatory disease in a subject, the method comprising administering to the subject  
20 an effective amount of a pharmaceutical composition comprising (i) a pharmaceutically acceptable carrier and (ii) a polypeptide comprising

(a) an extracellular region of the protein set forth in SEQ ID NO:2, or

25 (b) an extracellular region of a protein that consists of the amino acid sequence of SEQ ID NO:2 in which one to ten amino acid residues are substituted, deleted or added;

wherein said polypeptide comprises the amino acid sequence Phe-Asp-Pro-Pro-Pro-Phe (SEQ ID NO:21) and  
30 inhibits the activation of lymphocytes.

139. The method of claim 138, wherein the polypeptide consists of

(a) an extracellular region of the protein set forth in SEQ ID NO:2, or

5 (b) an extracellular region of a protein that consists of the amino acid sequence of SEQ ID NO:2 in which one to ten amino acid residues are substituted, deleted or added.

140. A method of treating an inflammatory disease in  
10 a subject, the method comprising administering to the subject an effective amount of a pharmaceutical composition comprising (i) a pharmaceutically acceptable carrier and (ii) a polypeptide fragment comprising amino acid residues 1-140 of SEQ ID NO:2.

15

141. A method of treating an inflammatory disease in a subject, the method comprising administering to the subject an effective amount of a pharmaceutical composition comprising (i) a pharmaceutically acceptable carrier and  
20 (ii) a polypeptide fragment consisting of amino acid residues 1-140 of SEQ ID NO:2.

142. A method of treating an inflammatory disease in a subject, the method comprising administering to the  
25 subject an effective amount of a pharmaceutical composition comprising (i) a pharmaceutically acceptable carrier and (ii) a homodimer molecule consisting of two polypeptide fragments bridged through disulfide bonds to each other, wherein each polypeptide fragment comprises the amino acid  
30 sequence Phe-Asp-Pro-Pro-Pro-Phe (SEQ ID NO:21) and comprises



(a) an extracellular region of the protein set forth in SEQ ID NO:2, or

(b) an extracellular region of a protein that consists of the amino acid sequence of SEQ ID NO:2 in which one to  
5 ten amino acid residues are substituted, deleted or added;  
wherein an antibody reactive with the homodimer molecule induces proliferation of peripheral blood lymphocytes in the presence of an antibody reactive with CD3.

10

143. The method of claim 142, wherein each polypeptide fragment comprises an extracellular region of the protein set forth in SEQ ID NO:2.

15

144. The method of claim 143, wherein each polypeptide fragment consists of an extracellular region of the protein set forth in SEQ ID NO:2.

20

145. The method of claim 142, wherein each polypeptide fragment consists of an extracellular region of a protein that consists of the amino acid sequence of SEQ ID NO:2 in which one to ten amino acid residues are substituted, deleted or added.

25

146. A method of treating an inflammatory disease in a subject, the method comprising administering to the subject an effective amount of a pharmaceutical composition comprising (i) a pharmaceutically acceptable carrier and (ii) a fusion polypeptide comprising

30

(a) a polypeptide consisting of an extracellular region of

(I) the protein set forth in SEQ ID NO:2, or

(II) a protein that consists of the amino acid sequence of SEQ ID NO:2 in which one to ten amino acid residues are substituted, deleted or added; and

(b) a portion of a constant region of a human immunoglobulin heavy chain;

wherein said fusion polypeptide comprises the amino acid sequence Phe-Asp-Pro-Pro-Phe (SEQ ID NO:21) and inhibits the activation of lymphocytes.

10        147. The method of claim 146, wherein the extracellular region of the polypeptide is amino acid residues 1-140 of SEQ ID NO:2.

15        148. The method of claim 146, wherein the portion of the constant region of a human immunoglobulin heavy chain consists of the hinge region, CH2 domain, and CH3 domain of human IgG heavy chain.

20        149. The method of claim 147, wherein the portion of the constant region of a human immunoglobulin heavy chain consists of the hinge region, CH2 domain, and CH3 domain of human IgG heavy chain.

25        150. The method of claim 146, wherein the fusion polypeptide consists of

(a) a polypeptide consisting of an extracellular region of

(I) the protein set forth in SEQ ID NO:2, or

30        (II) a protein that consists of the amino acid sequence of SEQ ID NO:2 in which one to ten amino acid residues are substituted, deleted or added; and

(b) a portion of a constant region of a human immunoglobulin heavy chain.

151. The method of claim 150, wherein the  
5 extracellular region of the polypeptide is amino acid residues 1-140 of SEQ ID NO:2.

152. The method of claim 150, wherein the portion of  
the constant region of a human immunoglobulin heavy chain  
10 consists of the hinge region, CH2 domain, and CH3 domain of human IgG heavy chain.

153. The method of claim 151, wherein the portion of  
the constant region of a human immunoglobulin heavy chain  
15 consists of the hinge region, CH2 domain, and CH3 domain of human IgG heavy chain.

154. A method of treating an inflammatory disease in  
a subject, the method comprising administering to the  
20 subject an effective amount of a pharmaceutical composition comprising (i) a pharmaceutically acceptable carrier and (ii) a homodimer molecule consisting of two fusion polypeptides bridged through disulfide bonds to each other, wherein each fusion polypeptide comprises

25 (a) a polypeptide consisting of an extracellular region of

(I) the protein set forth in SEQ ID NO:2, or

(II) a protein that consists of the amino acid  
sequence of SEQ ID NO:2 in which one to ten amino acid  
30 residues are substituted, deleted or added; and

(b) a portion of a constant region of a human immunoglobulin heavy chain;

wherein each fusion polypeptide comprises the amino acid sequence Phe-Asp-Pro-Pro-Pro-Phe (SEQ ID NO:21) and inhibits the activation of lymphocytes.

5           155. The method of claim 154, wherein each fusion polypeptide consists of

(a) a polypeptide consisting of an extracellular region of

10               (I) the protein set forth in SEQ ID NO:2, or  
              (II) a protein that consists of the amino acid sequence of SEQ ID NO:2 in which one to ten amino acid residues are substituted, deleted or added;  
              and

15               (b) a portion of a constant region of a human immunoglobulin heavy chain.

20           156. The method of claim 154, wherein the extracellular region of the polypeptide is amino acid residues 1-140 of SEQ ID NO:2.

25           157. The method of claim 154, wherein the portion of the constant region of a human immunoglobulin heavy chain consists of the hinge region, CH2 domain, and CH3 domain of human IgG heavy chain.

30           158. The method of claim 156, wherein the portion of the constant region of a human immunoglobulin heavy chain consists of the hinge region, CH2 domain, and CH3 domain of human IgG heavy chain.

159. The method of claim 155, wherein the extracellular region of the polypeptide is amino acid residues 1-140 of SEQ ID NO:2.

5        160. The method of claim 155, wherein the portion of the constant region of a human immunoglobulin heavy chain consists of the hinge region, CH2 domain, and CH3 domain of human IgG heavy chain.

10       161. The method of claim 159, wherein the portion of the constant region of a human immunoglobulin heavy chain consists of the hinge region, CH2 domain, and CH3 domain of human IgG heavy chain.

15       162. A method of treating an inflammatory disease in a subject, the method comprising administering to the subject an effective amount of a pharmaceutical composition comprising (i) a pharmaceutically acceptable carrier and (ii) a polypeptide consisting of the amino acid sequence of  
20       SEQ ID NO:2 in which one to ten amino acids are substituted, deleted or added; wherein,

          (a) the polypeptide comprises the amino acid sequence Phe-Asp-Pro-Pro-Pro-Phe (SEQ ID NO:21) in its extracellular region,

25        (b) the polypeptide comprises the amino acid sequence Tyr-Met-Phe-Met (SEQ ID NO:22) in its cytoplasmic region, and

          (c) an antibody reactive with the polypeptide induces proliferation of peripheral blood lymphocytes in the  
30        presence of an antibody reactive with CD3.